

## Alternate Master Plan

During the preparation of the Fish Creek Plan two alternative master plans were developed. The major difference between the two was the location of the north-south primary road. This in turn dictated some differences in the tract layout, the east-west corridor, and the secondary roads. In the selected master plan (originally alternative one) this north-south road is located along the western toe slopes of Moraine Ridge. In the alternate master plan (originally alternative two) this road is located further west, through the agricultural area. Though the Department of Transportation and Public Facilities located both corridors, they prefer the location in the alternate master plan. The selected master plan was chosen by the Department of Natural Resources and the Matanuska-Susitna Borough because of land use considerations that are outlined in the transportation section of Chapter Three.

In its comments on the public review draft of the Fish Creek Management Plan, the Department of Transportation and Public Facilities said:

"Another issue is which alternative should be selected for the north-south primary access route. During the public meeting on this draft plan the Matanuska-Susitna Borough Planning Department and the Borough Planning Commission took the position that Alternative #1 was their preferred alternative, assuming approximately equal costs for construction and maintenance.

As in most road alignments, this one involves trading off various advantages and disadvantages to select the preferred alternative. In order to select a preferred alternative, the primary function the route is being selected to serve should clearly be identified. As stated in the draft plan, while this road will initially be an agricultural access road, it can be expected to become a major north-south arterial between the Pt. MacKenzie area and the Parks Highway. The timing of this transition will depend on the construction of the Knik Arm Crossing and the upgrading of these roads from resource development to highway standards. For this reason, we believe the primary functional objective of this alignment should be to serve as an arterial between the Pt. MacKenzie area and the Parks Highway.

In satisfying this objective, we believe that Alternative #2 is superior. Our recommendation is that Alternative #2 be selected as the preferred corridor alignment in the Fish Creek Management Plan given the present level of limited materials and engineering data available to base this decision on. It is important to realize that this alignment will probably define the route of a future highway for the functional life of the right-of-way, rather than the functional life of any interim road.

The following factors should be considered in association with our corridor alignment recommendation:

1. Cost: We expect there will be substantial public pressure to upgrade this road to highway standards once it has been initially constructed. The information we have at present indicates that Alternative #2 will be less expensive to upgrade than Alternative #1.

The data to base reliable cost estimates on is lacking. Mr. Tom Young, the Borough engineer responsible for developing the cost estimates in the plan, believes his cost estimates can be assigned an accuracy range of + 25%. Preliminary cost estimates developed by the DOT&PF are expected to be within an accuracy range from 25% over to 75% under the actual cost. As stated on page 74 of the (draft) plan, the depth of top soil and the proximity of gravel to each alternative alignment has not been determined or incorporated into the cost estimates. Both of these factors are important in developing reliable cost estimates.

The purpose of noting the accuracy range of preliminary cost estimates is to point out that there may be significant cost differences between these two alternatives which will not be known until the materials and preliminary engineering analysis has been conducted. Because of this uncertainty on ultimate costs, we would recommend that the preliminary engineering and materials identification be completed before the agricultural parcels are sold.

2. Land Use Compatibility: The land use compatibility issue is a composite of advantages and disadvantages regarding each alternative.

Alternative #1 would have the advantage of aligning the primary north-south access route closer to an area the Matanuska-Susitna Borough is considering for residential development. This would allow more direct residential access. The proposed residential area could also expect to experience greater noise and dust impacts with Alternative #1. This alternative would provide a boundary between agricultural and residential uses. However, the effect of this boundary would probably be minimal in separating the actual conflicts between residential and agricultural uses. The primary incompatibilities between agriculture and residential land uses are dust, odors, pesticides, herbicides and water pollution from agricultural operations as well as trespass on agricultural land by individuals from the residential area. The magnitude of these conflicts would be largely unaffected by which alignment alternative is selected.

Alternative #2 would result in a more centralized access alignment for the agricultural operations, but a less direct access for the proposed residential uses. It would also result in bisecting the agricultural area. This alternative would provide statutory protection to both sides of the north-south alignment through the agricultural area from traffic congestion created by future commercial and residential development along the route. Agricultural land use is highly compatible with a limited access highway. It can provide highway travelers with attractive viewsheds as well as

helping preserve functional characteristics of the highway, while providing access to the agricultural parcels.

3. Design and Construction Standards: The horizontal and vertical alignment of Alternative #2 results in fewer and more gradual curves and consequently better sight distance than Alternative #1. At the 65 MPH design speed, 2300 feet of sight distance is the minimum required for passing. This factor will become increasingly important for traffic safety as the traffic volume increases. Traffic volumes can be expected to increase substantially as this route evolves from primarily an agricultural access road to a major arterial. It appears that Alternative #2 can generally meet the design requirements for a 65 mile per hour (MPH) design speed. Alternative #1 would not meet the criteria for rural highways over level ground."

Following receipt of these comments they were discussed in a meeting attended by representatives of the Department of Natural Resources, the Matanuska-Susitna Borough, and the Department of Transportation and Public Facilities. The compromise agreed to was that the plan would make clear that more information was needed before the decision on the selected route could be considered final and would leave the door open to reconsidering the alternate route. For this reason the following information adapted from the public review draft is presented here. It includes the alternate master plan, a chart analyzing the agricultural tract acreages in the alternate plan, and a comparison of the two primary road systems.

#### Comparison of Alternative Road Systems

A chart on the next page compares the alternative primary road systems. The selected alternative is preferred by the Matanuska-Susitna Borough, the Department of Natural Resources, and the Matanuska-Susitna Agricultural Advisory Board. The soils crossed by the selected corridor are less valuable for agriculture than those crossed by the alternative corridor. Also the selected corridor is not as disruptive to the farm tract layout; generally, it forms the boundary between the agricultural tracts to the west and the settlement lands on the Ridge. (See also the Transportation Section in Chapter 3.) The alternate corridor is preferred by the Department of Transportation because the terrain it crosses is better for building roads. It is flatter, allowing for a straighter alignment, and the top soils are shallower. Also the alternate corridor fits better with the main east-west corridor. The north-south road in the selected corridor is slightly shorter, but overall the primary system in this alternative is longer because of the additional length of the east-west road. According to preliminary cost estimates, the primary road system in the selected alternative will cost about \$600,000 more to build due to the more difficult terrain in the north-south corridor and the greater length of the east-west road. However, when costs for both primary and secondary roads are considered, the selected alternative costs only \$150,000 more to build. This was not considered a significant difference.

Table 5

COMPARISON OF ALTERNATIVE PRIMARY ROAD SYSTEMS

<u>CRITERIA</u>	<u>ALTERNATIVE 1 NORTH-SOUTH ROAD VIA MORaine RIDGE</u>	<u>ALTERNATIVE 2 NORTH-SOUTH ROAD VIA AGRICULTURAL AREA</u>
General soils	Deeper top soils (more susceptible to frost heaves); gravelly, coarse sand subbase.	Shallower top soils, sandy sub-base.
Agricultural soils included in primary road system		
Class II	511 acres	600 acres
Class III	244 acres	115 acres
Total Class II & III	755 acres	715 acres
Slope, North-South Road	5.75 miles of slopes over 7%; of that, 1.58 miles over 12%; greater amount of cut and fill necessary to minimize grades; more susceptible to erosion.	2.24 miles of slopes over 7%; of that, 0.5 miles over 12%.
Slope, East-West Road	0.83 mile over 30%.	0.85 mile over 30%.
Stream crossings	One major stream crossing (Fish Creek).	Several stream crossings (including Fish Creek).
Length North-South Road	12.3 miles	12.4 miles
Length East-West Road	8.6 miles	7.1 miles
Length of primary system	20.9 miles	19.5 miles
Initial Cost of primary system	\$6.87 million	\$6.27 million
Initial cost of total system	\$19.22 million	\$19.37 million
Alignment	Greater amount of curves resulting from topography and land status.	Straighter alignment.
Land use compatability	Road serves as demarcation between agricultural area and residential area.  Road closer to residential area, giving faster access and more impacts.	Road goes through agricultural lands.  Road is further west which gives future traffic from west (e.g. Beluga) a shorter route to Fairbanks.
	Places intersection with Beluga corridor at the south end of Moraine Ridge where future commercial/industrial development is to occur.	Places intersection with Beluga corridor in the agricultural area.
	55 agricultural tracts.	59 agricultural tracts.
Effect on private lands	Crosses two parcels.	Does not cross parcels.



A question that is not really addressed in the chart is the proximity of gravel to each route. This requires more field work to answer. Generally, gravel deposited by a river is better for road construction than gravel deposited by a glacier because of the silt mixed with the latter. The Soil Conservation Service's Susitna Valley Soil Survey indicates that there should be gravel under the top soil along the Moraine Ridge route. If there is, it may be possible to use it for road construction, but it may be mixed with silt and therefore be less desirable. More likely sources of good, washed gravel are the Bernice soils which lie along the streams. There are more of these along the route of the alternate corridor.

Two factors contribute to the possible greater cost of the route along the toe of Moraine Ridge: the steeper slopes and the deeper top soils. The method used for calculating costs did differentiate among slopes but not among top soil depths. Therefore the cost for the selected route may be higher than indicated.

This analysis is based on preliminary information. The soils information is from the Soil Conservation Service as published in the Soil Survey, Susitna Valley Area, December, 1973. Inaccuracies are possible in both the soils information and the cost estimates. Accurate cost estimates cannot be obtained without a preliminary engineering study which has not been funded to date.

## Management Guideline

The following is a management guideline which applies to the alternate master plan.

If Alternative Two is selected the location of the north-south corridor in Section 8, Township 16 North, Range 5 West or the location of the Iditarod Trail corridor should be adjusted during survey, if necessary, to minimize the impact of the road on the trail. The crossing should be as close to right angles as possible and overlap in the corridors should be kept to a minimum. It may be necessary to move the curve in the highway slightly south to accomplish this.

Table 6  
FISH CREEK  
AGRICULTURAL TRACT ACREAGES  
(Approximate)\*  
Alternate Master Plan

TRACT #	CLII	CLIII	CLIV	CL II & III	Wetlands	Roughlands	TOTAL	% CLII, III SOILS IN TRACT
1	--	228	122	228	83	--	436	52%
2	--	256	37	256	12	5	314	81%
3	20	366	6	386	55	4	461	84%
4	611	2	7	613	12	25	656	93%
5	425	--	44	425	16	31	516	82%
6	616	8	22	624	154	41	845	74%
7	316	--	--	316	1	15	331	95%
8	68	--	--	68	--	1	69	99%
9	154	14	9	168	--	2	180	94%
10	150	25	28	175	29	7	240	73%
11	263	--	81	263	21	11	377	70%
12	504	--	--	504	--	9	514	98%
13	184	--	6	184	--	16	208	89%
14	116	--	--	116	--	2	118	98%
15	64	259	85	323	25	11	445	73%
16	--	276	32	276	12	1	324	85%
17	16	384	15	400	13	14	442	91%
18	483	--	--	483	3	42	529	91%
19	294	219	9	513	29	11	564	91%
20	324	42	--	366	--	4	370	99%
21	44	130	--	174	40	13	229	76%
22	256	177	101	433	160	32	747	58%
23	7	174	5	181	22	1	209	87%
24	9	187	57	195	37	3	295	66%
25	607	9	30	616	41	6	696	89%
26	181	--	--	181	17	--	199	91%
27	465	37	11	502	30	7	557	90%
28	156	--	--	156	4	2	164	95%
29	16	51	--	66	6	8	81	82%
30	211	215	163	426	93	19	703	61%
31	350	--	3	350	43	32	428	82%
32	484	11	25	495	72	23	631	78%
33	146	--	33	146	24	--	212	69%
34	400	--	--	400	19	9	428	93%
35	223	--	--	223	53	6	283	79%
36	230	--	30	230	82	--	345	67%
37	111	--	6	111	44	1	162	69%
38	70	--	--	70	3	--	73	96%
39	134	--	--	134	28	--	163	82%
40	67	--	67	67	29	--	163	41%
41	84	--	8	84	--	--	92	91%
42	81	69	--	150	41	8	203	74%
43	55	59	3	114	27	25	169	67%
44	330	64	41	394	69	26	530	74%
45	203	--	4	203	5	8	220	92%
46	104	--	36	104	44	3	187	56%
47	74	85	156	159	34	32	382	42%
48	--	206	87	206	36	71	400	52%
49	209	121	--	330	107	--	438	75%
50	58	71	16	129	9	4	158	81%
51	37	13	16	50	9	--	76	66%
52	94	--	31	94	15	--	140	67%
53	22	--	--	22	--	--	22	98%
54	168	--	11	168	16	13	208	81%
55	156	--	5	156	32	15	220	71%
56	27	92	50	119	26	8	211	57%
57	200	79	--	279	39	--	319	88%
58	201	11	25	212	41	--	286	74%
59	68	--	118	68	22	39	257	27%
MR1	--	74	--	74	30	--	105	71%
MR2	--	85	43	85	7	8	142	59%
MR3	--	118	--	118	--	7	125	94%
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BOROUGH	6,785	3,884		10,649			13,536	
STATE	4,681	646		5,329			7,214	
TOTAL	11,466	4,510	1,739	15,978	2,110	886	20,750	

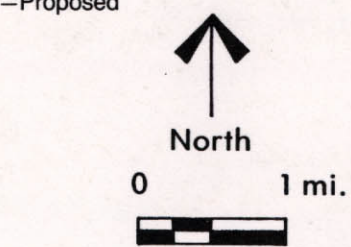
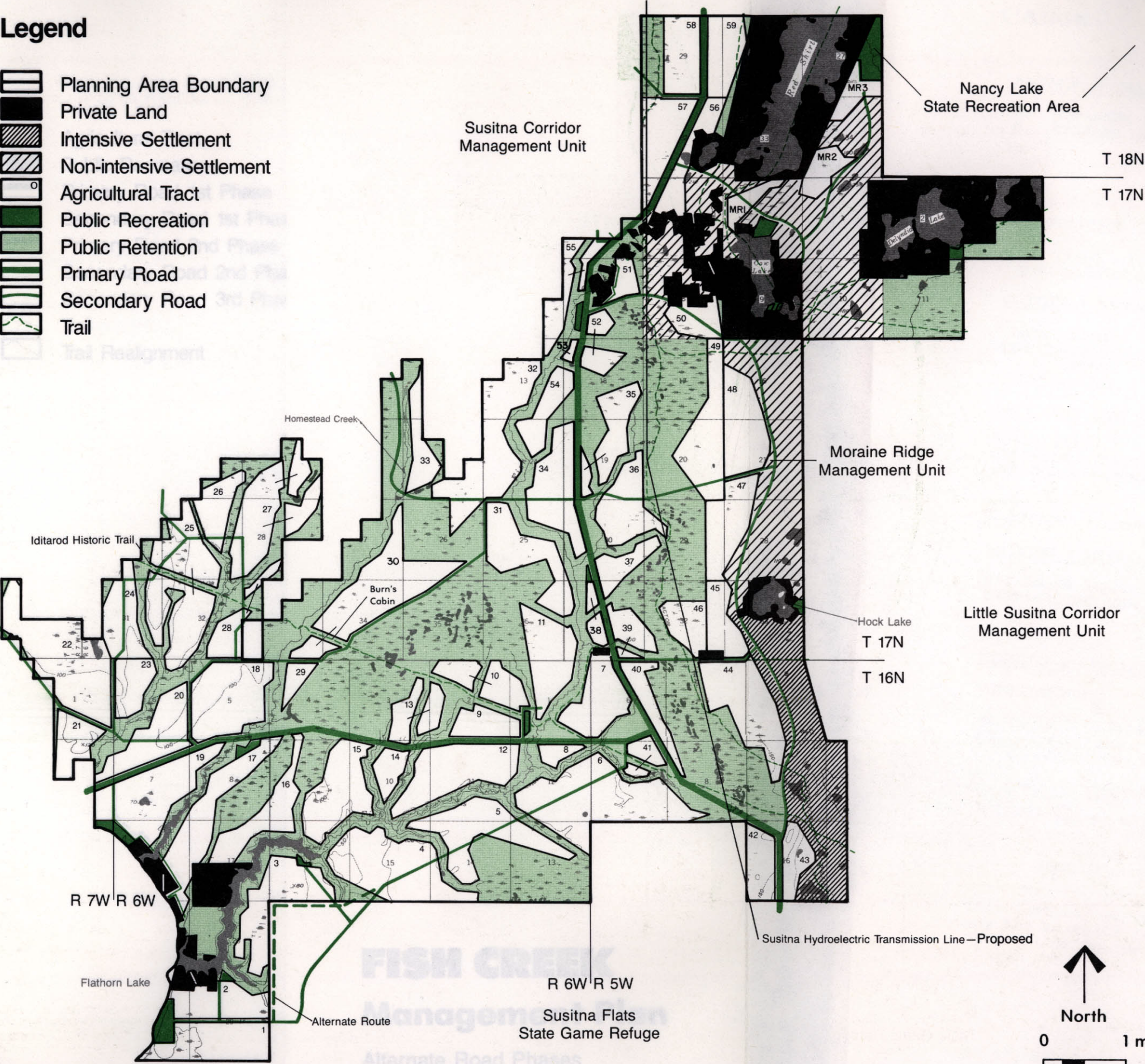
\* Acreages are approximate because they are calculated from data represented at 1:63,360; precise acreages will not be available until the tracts are surveyed. Acreage included in secondary roads (100 ft. corridors) has not been subtracted out of tracts. Discrepancies between the total of the categories and the total acreage in the tracts is generally due to water and imprecision in the data.



Legend

- Planning Area Boundary
- Private Land
- Intensive Settlement
- Non-intensive Settlement
- Agricultural Tract
- Public Recreation
- Public Retention
- Primary Road
- Secondary Road
- Trail

Trail Realignment








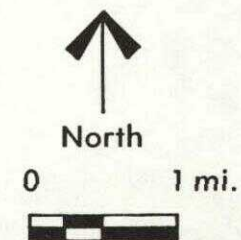
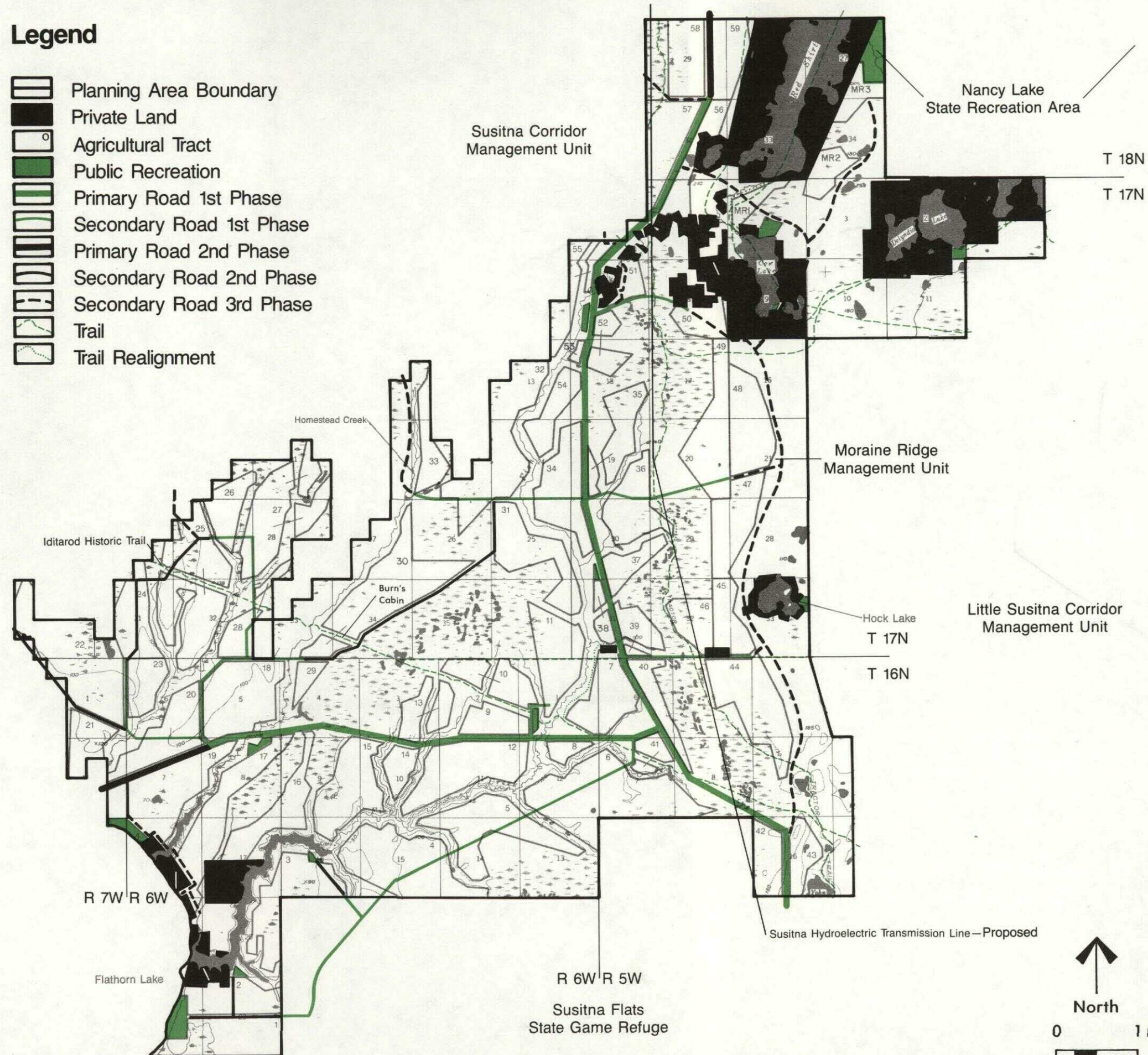
# FISH CREEK Management Plan

Alternate Master Plan



# Legend

-  Planning Area Boundary
-  Private Land
-  Agricultural Tract
-  Public Recreation
-  Primary Road 1st Phase
-  Secondary Road 1st Phase
-  Primary Road 2nd Phase
-  Secondary Road 2nd Phase
-  Secondary Road 3rd Phase
-  Trail
-  Trail Realignment



## FISH CREEK Management Plan

Alternate Road Phases